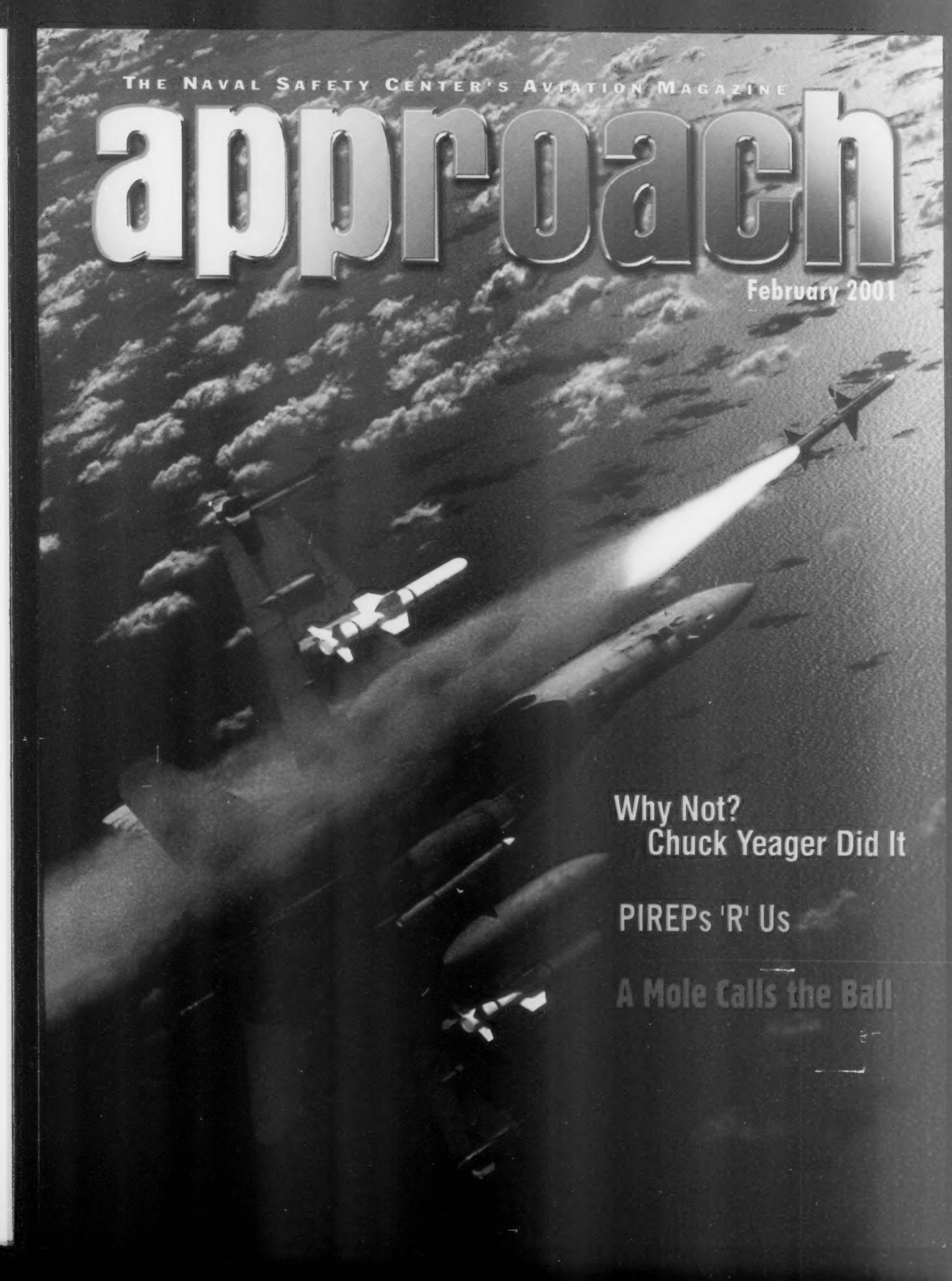
THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

February 2001



Why Not? Chuck Yeager Did It

PIREPs 'R' Us

A Mole Calls the Ball

approach

The Naval Safety Center's Aviation Magazine
August 2000 Volume 46, No. 1
On the Cover: An FA-18 armed with AIM-9 Sidewinder air-to-air missiles, AGM-84 Harpoon air-to-air surface/anti-shipping missiles and carrying long-range fuel tanks launches an AIM-7 Sparrow air-to-air missile. Photo: McDonnell. Douglas. Photo composite: John W. Williams.

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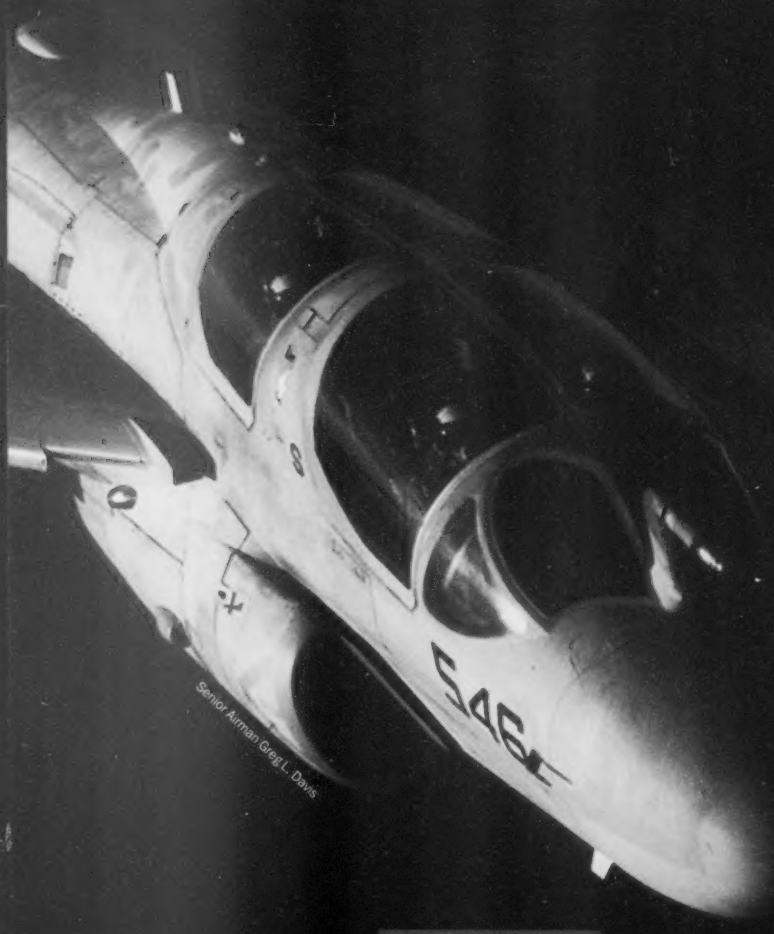
departments

Thanks for your help with recent issues

Lt. Scott Downey, NATOPS Officer, VFA-86
Lt. Robert Krause, ASO, VS-24
LCdr. Brad Meeks, Safety Officer, VAQ-136
Lt. Leah Nelson, PAO, HSL-45
Lt. Scott L Propst, Safety and NATOPS Officer, VAQ-134

Guzzling Gas, Prowler-Style



Senior Airman Gregg L. Davis

by LCdr. Clark Troyer

Our crew had briefed for a night section event off the carrier. Our mission was to work a time-critical targeting timeline, then come back to get a night trap for currency on a moonless night. The ship was in the eastern Mediterranean, and our closest divert was in Israel.

We were shot off into the black and joined overhead. We then pressed west to set up for a couple of runs, using mother as our target. The mission entailed two high-speed runs, which wasn't a problem, since we had a full bag of gas and only a 1+15 cycle. After the first run as the jammer, we reset and set up as the striker. We got a good fuel check, well above ladder at 13.6. All the gauges and tapes were normal as we pressed on our timeline for the second TOT.

Less than five minutes into the run, a NORDO Hornet became an issue on the strike frequency. We were asked to stop our run and try to find the Hornet, which wasn't squawking and was somewhere overhead Mother. Not the ideal mission for a Prowler crew—we don't have an air-to-air radar, and the controllers believed the Hornet might also be midnight because of an electrical failure. Just as we knocked it off, we heard that the Hornet's playmate had him on radar, and we decided to keep our nose out of the equation.

I looked down to quickly check fuel and tapes. Hold it—what did I call the state a few minutes ago, 13.6? Why was the fuel gauge showing 8.9 and decreasing? Must be something wrong with the gauge. Much to my chagrin, the gauge was accurate, and our fuel state was ticking down, passing 8,500 pounds. The wing dumps and fuselage dumps were definitely off, and with a visual check, we confirmed there was nothing coming out of the wings. Time for the good old uncommanded-loss-of-fuel checklist, one of many emergencies you hope you never have to experience, especially at sea.

Two quick boldface steps: "tank-pressurization switch off" and "land as soon as

possible." The tank-pressurization switch was off, and the fuel was still ticking down, passing 8,000 pounds. My right-seater (ECMO 1), who was also the skipper (which was nice, since I didn't have to explain this one to him later in the ready room), had already pulled out the checklist and started at step one, just as we had briefed. We double-checked that the pressurization switch was off and the TACAN needle was on the nose. We had 40 miles back to mother. Our divert wasn't an issue, since it was another 80 miles past the carrier.

Step three, apply positive and negative G's. No joy, the gauge was still ticking down. Step four, fuselage dump switch to dump, then norm. Fuel passing through 7,300 pounds. The next step was to pull the fuselage-dump circuit breaker. Fuel was passing through 7,000 pounds, with 6,400 pounds in the main bag. The final step was to burn down to 2,000 pounds in the fuselage, then transfer fuel out of the wings at 1,500-pound increments. Not an issue, since we only had around 600 pounds left in the wings. ECMO 1 contacted marshal and requested an immediate landing. Marshal asked a few questions, including if we wanted vectors to the tanker. The skipper emphatically stated, "We need to land now!" and no more questions were asked. The ship's controllers did a good job setting us up for a short hook. As we descended and set up on the downwind, it looked like the fuel had stopped decreasing at the unusually high rate and stabilized out at 6,200 pounds. The pucker factor started to decrease, and we got a chance to knock out our approach to landing checks. The rest of the approach was uneventful. We landed with plenty of gas, and paddles was generous with an OK 2-wire.

After we shut down and debriefed maintenance, we had a chance to catch our breath and sort out everything that had happened over the last 15 minutes of the flight. It had seemed like an eternity. We definitely hadn't had fuel coming out of the wing dumps, and when we turned inbound, we tried to see if fuel was coming out the fuselage dump mast on the tail—not an easy thing to see on a dark night. The wing fuel appeared to be dumping directly from the fuselage fuel-vent outlet in the tail, because a non-modulating pilot-valve had failed. All the steps in the checklist had no effect, and the dumping only stopped when the wing tanks were empty. The fuselage was lower than normal (around 6,500 pounds) because we were at max thrust during the training and while heading back to Mother at max speed. The wings dumped at more than 1,200 pounds per minute, which appeared to be consistent with our fuel loss.

Even though you may have done a thousand fuel and tape-gauge checks that are uneventful, the one you miss can put you in a box. It took less than five minutes for us to lose more than 4,000 pounds of fuel.

Know your NATOPS. The checklists may not cover every situation, but a thorough knowledge of each system gives you the best opportunity to handle an emergency.

Crew coordination is paramount in all multi-place cockpits. We had three people in the aircraft to fly the aircraft, read through the checklists, and handle the communications. Briefing the responsibilities of each member was an enormous benefit and time-saver.

Be directive with your controllers. You have the best understanding of your current problem, so don't let someone talk you out of your plan. The basics were instilled in us early in our careers for a good reason.

LCdr. Troyer is attached to the CVW-7 staff; he was flying with VAQ-140 during this incident.

Is Your C
Stow

by Lt. Kerry May

Several weeks ago, our squadron was assisting with a multi-organizational, special-warfare exercise. For about two weeks, we flew missions involving fastrope, cast and recovery, SPIE rigging and insertion. We were working with teams from other organizations and even from other countries, but the people we briefed with tended to be the same people every day. The missions had been going well, and we were starting to work together more efficiently.

On the day of our incident, we were scheduled for fastroping ops in several areas. We had three hours of flight time [illegible] pick up several teams and have them fastrope to different places. Our briefs covered times and locations of the picks and drops. For the past several days, the units we worked with had sent a representative (the jumpmaster) to our flight briefs. We would give our standard NATOPS brief, and the rep would brief us on the mission.

On this particular day, the jumpmaster seemed pleased to find that HAC and aircrew were the same people he had flown with the day before. They'd had a successful flight, and he knew this crew was familiar with the missions. The brief did not need to be extensive, since the crew knew the landing areas and other details, such as radio frequencies and call signs. We touched on how to secure loose gear in the back of the aircraft.

The special-warfare units had a small dilemma with their gear. Because someone had been injured during a prior exercise, they weren't allowed to fastrope wearing their rucksacks during practice. They still wanted to simulate the quickness of a true fastrope evolution, so they rigged the gear in the back of the helicopter so it could be lowered to the ground as the team fastroped from the front of the aircraft. They tied the rucksacks together and placed them on the ramp. A belay line was attached to them, going up through a figure-eight fixture and back into the cabin. The plan was to lower the ramp, swing the rucksacks out like a pendulum, and lower them via the belay line. We'd been using this method throughout the week, and it worked. When briefing this part of the event, the

LCpl. D.R. Storms
composite by John W. Williams

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crew agreed that the belay of the gear would be accomplished in the same manner as the day before.

After the brief, we went flying. We completed two insertions, one that required landing in the LZ and a second requiring a fastrope evolution. We were getting ready for the third insertion, another fastrope. We landed and picked up the next team of people. There were more people than we had briefed, but we determined we could accommodate the extra troops. Once all was secure in the back, we took off.

We had been flying slower than 100 knots all of the day because our hoist boom was extended. The crewman in the back told us the boom had been stowed, so we decided to speed up to 120 knots. At approximately 100 knots and 800 feet, one of our crewmen asked us to slow down because one of the packs had flown out the back. We started to slow when we heard a loud bang and felt a jolt to the aircraft. At the same time, the crewmen informed us that all of the packs had flown out the back.

Worrying that the packs might have fallen on houses, we turned around to look for them. As we were turning, the crewmen told us we needed to land. At the same time, the aircraft developed a jerking lope. We started to look for a place to land and asked the crewmen what was wrong with the aircraft. They said the rope had gone up through the rotor arc. We immediately spotted a small baseball field with adequate clearance to land. As we came into a hover over the landing area, the jerking lope stopped and the aircraft smoothed out. We landed as soon as we knew it was safe. The passengers exited, and we shut down. The whole incident lasted approximately two minutes.

Once we were safe on deck, we discussed what had happened and assessed the damage. We learned that the rucksacks had not been tied to the deck. The belay line they were attached to was not tied down to the deck either. The ramp had been slightly lower than full up, allowing wind to come in from the side and get in front of the packs. When a small pack went out the back of the aircraft, it pulled the heavier packs out with it. The belay line spooled out without stopping until it fouled on a pad eye. Once it stopped, the force snapped the line to the packs. The line was then free to go up into the rotor arc of the aft head, where it wrapped around the upper controls several times.

Inspecting the damage, we saw that the rope had torn through the cowling. Some of the cowling was missing, and some of it had been pushed into the flight controls. The rope itself was wrapped four times about the controls. We could see that as the head spun, the rope had tightened until the pitch-change links bent inward and almost came loose. We could have lost control of the aircraft.

Most of the lessons learned had to do with the brief. We never discussed how we would tie down the equipment. The crew chief assumed the jumpmaster was the expert in the back and did not observe the stowage of the gear. We should have briefed that the crew chief was responsible for that duty. If we had properly briefed the subject, we would have realized that the jumpmaster did not know our procedures for stowing loose gear in the back. We assumed that since the mission had gone well the day before, it would go well again, and the crew failed to ask important questions during the brief.

Another problem was the slightly lowered ramp. We didn't realize the wind could push an object sitting on the ramp out of the aircraft.

Never assume the mission specialists know more about how to rig something in our aircraft than you do. Get the details and have a clear idea about what is going to happen. We all knew not to have loose gear in the cabin, but we assumed that the crew chief secured the gear, and the crew chief assumed that the jumpmaster was an expert.

Lt. May flies with HC-5.

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Several weeks ago, our squadron was assisting with a multi-organizational, special-warfare exercise. For about two weeks, we flew missions involving fastrope, cast and recovery, SPIE rigging and insertion. We were working with teams from other organizations and even from other countries, but the people we briefed with tended to be the same people every day. The missions had been going well, and we were starting to work together more efficiently.

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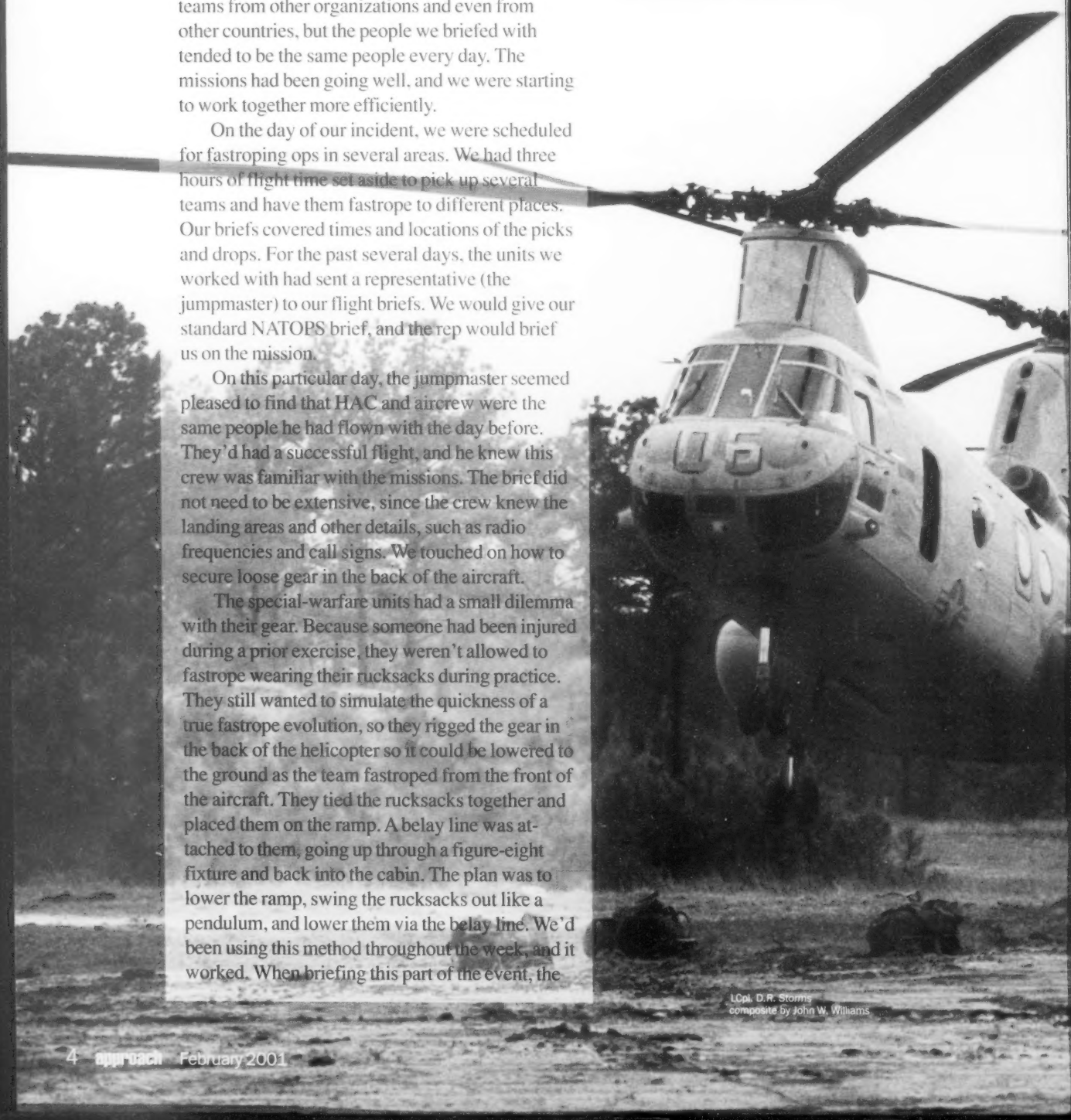

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Lt. May flies with HC-5.

It's Not Suppo To Work Like T

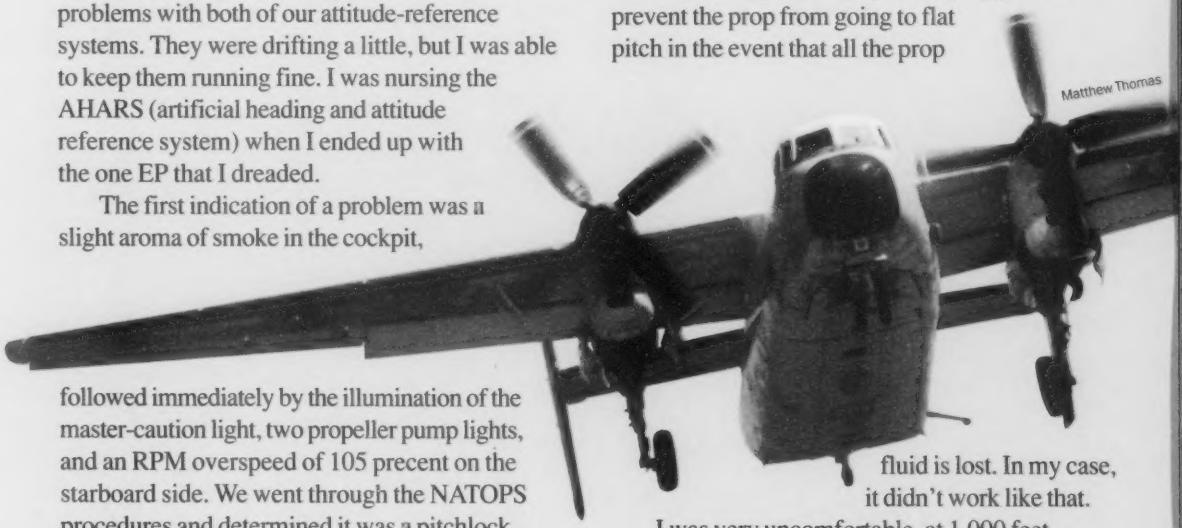
by Lt. Bill Hammack

It started out as a normal day at the E-2/C-2 RAG: brief an FCLP event and head out for a long day in the pattern, trying to help students figure out how to fly the ball. We launched and left Navy Norfolk for a three-to-four-hour flight.

The weather wasn't bad—a broken layer at 1,800 feet—so we needed only a little help from Oceana approach to get into NALF Fentress. After the first part of the period, we started having problems with both of our attitude-reference systems. They were drifting a little, but I was able to keep them running fine. I was nursing the AHARS (artificial heading and attitude reference system) when I ended up with the one EP that I dreaded.

The first indication of a problem was a slight aroma of smoke in the cockpit, followed immediately by the illumination of the master-caution light, two propeller pump lights, and an RPM overspeed of 105 precent on the starboard side. We went through the NATOPS procedures and determined it was a pitchlock, and a really bad one at that. I took the controls from the student and was shocked to find that I was losing directional control of the aircraft. Normal V_{mca} is about 100 knots with one engine out in a COD, but we were at 130 knots, and we still had both engines on line (even if one wasn't working correctly). To make matters worse, with full power on the good engine, airspeed and altitude were winding down.

C-2s and E-2s have a pitchlock system built into the propellers to "help" the pilot if a propeller loses hydraulic fluid. Unlike the T-34, which has a spring assembly that will drive the prop to feather in the event of a failure, the C-2 and E-2 need hydraulic pressure inside the prop to drive the prop to feather. The pitchlock system is supposed to prevent the prop from going to flat pitch in the event that all the prop fluid is lost. In my case, it didn't work like that.



Matthew Thomas

I was very uncomfortable, at 1,000 feet, without directional control and in a shallow descent. The only way to regain control of the aircraft was to pull power on the good engine (just like they teach you in the training command). By pulling power on the good engine, V_{mc} air was decreased to a point we could regain directional

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control. The problem then became that without full power on the operating engine, I was picking up a rate of descent with nothing but trees below us. We could arrest the rate of descent with power, but that just put us back where we started with V_{mc} issues.

As I looked out at the nacelle, I was surprised to see how much hydraulic fluid was out there. All my indications led me to believe that I had a propeller stuck at the low-pitch stops (flat blade, the worst-case scenario). If an engine flames out with a propeller stuck at the low-pitch stops, the COD doesn't have enough power on the remaining engine to stay flying. I started making a plan to ditch the aircraft in the event of a flameout.

Going through the NATOPS was no help. Basically, it told me I wasn't "operating in accordance with recommended pitchlock procedures." That was great information, as I was trying to maintain directional control, barely maintaining altitude, and had a student sitting next to me. NATOPS was telling us the propeller system isn't supposed to work like that, so we were on our own. It did, however, tell us to expect an increased V_{mca} of about 130 knots. We verified that fact several times as our airspeed varied between 127 and 130 knots. As advertised, we would lose directional control at about 129 knots. NATOPS recommended we maintain 10 knots above V_{mc} until landing is assured, but that wasn't possible.

We went through the checklists and did a quick, side-to-side seat swap. I was concerned that I was either going to have to ditch the aircraft or would have controllability problems on deck. In the left seat, I'd at least have the nosewheel steering available for the rollout. We had already declared an emergency to paddles, and all of the Hawkeyes were up in the delta pattern to watch the show.

We put the hook down, and I briefed my student to have his hand on the T-handle to try to feather the engine if I called for it. This is a big deviation from NATOPS. We teach never to T-handle a pitchlocked engine, because you might end up with a flat blade. I figured that I was already as bad off as I could get, so if the engine shut down on its own, I wouldn't have anything to lose.

We made the turn to final and got into the wire without a problem. I thought I was done until the aircraft swerved toward the right side of the runway. I told the student to feather the engine, and we came to a stop in the wires. After all was said and done, the prop feathered. It wasn't supposed to, according to all of our training and systems knowledge, but it did.

After talking to our maintenance department, it turned out the nut that holds the propeller assembly together had backed off. After the nut failed, all of the hydraulic fluid that controls the propeller-pitch-change mechanism dumped. It was such a rapid and massive failure that the pitchlock system didn't have time to kick in.

NATOPS doesn't cover all possible emergencies. When you're faced with a situation that isn't covered, fall back on your systems knowledge. NATOPS allows an aircraft commander to override what is published, in the event things aren't acting as advertised, or you're dealing with something out of the norm. Good systems knowledge, crew coordination, and a little help from paddles kept this EP from causing the loss of aircrew or aircraft.

Lt. Hammack is an FRS instructor and NATOPS officer at VAW-120.

Photo composite by John W. Williams

"Flight's On!"

Why the C-9 Told the P-3,

by Cdr. Andy Boening

My schedules officer finally let me out of the office to fly a good-deal training hop: a local NATOPS refresher. Flight time in the squadron had been scarce for the month, because of our current schedule. Two of our three airplanes were on detachment. The third had unceremoniously broken the same day the others had left, but things were looking up. Maintenance had found the problem and would have our aircraft ready to go for the next day's trainer. This was my chance to get the required number of hours and landings for the month.

It was a beautiful VFR spring day at NAS Jacksonville as we launched out to Gainesville Regional Airport for a few approaches, followed by several turns in the touch-and-go pattern. I was crewed up with my SELRES (selected reserve) operations officer in the copilot seat, and one of our new JOs was acting as the crew chief. Our flight down and back went smoothly. On our final approach to landing back at NAS Jacksonville, the excitement began.

During a touch-and-go at the end of a PAR approach, I noted a P-3 taxiing to the hold short line at the departure end of the active runway (RWY 27). I didn't pay much attention to it until the aircrew started coordinating with tower for an opposite-direction, VFR takeoff from RWY 09 into the local pattern. The next call from tower was for us. "JV Zero-Five-Zero, need you to full stop on your next pass."

My first thought was, "Did we miss the NOTAM for a P-3 air show practice period?" I still needed one more

touch-and-go and a full stop to finish up my currency requirements for the flight. I asked tower if we could squeeze in one more landing. After a slight pause, they approved my request. Their new game plan would be to launch the P-3 opposite direction during our downwind leg prior to our full stop. No problem! I would get my last landing, and our VP brethren would get airborne a little faster.

Then I started to question the plan. "Why do we need to launch airplanes in opposite directions during normal field operations?" I wondered. I didn't pass on my thoughts to my crew or the tower controllers.

The tower's plan seemed to work. The P-3 launched and made a left turnout from RWY 09 as we turned to a left downwind for RWY 27. As I understood from listening to their conversations with tower, the P-3 was going to depart the pattern to setup for a flyby, which would be timed to happen after we landed.

We moved our attention back to completing the pattern-go-around checklist and made a normal abeam call for landing. The controller responded, "Cleared to land number two. Follow a P-3 on a five-mile final for a full stop on runway 27." I held the final flap setting and flew an extended downwind to give us enough room to land behind the full stop (not the airshow P-3, another P-3).

Then things started to get even more interesting. Coming through the 90, I picked up a visual on the airshow P-3, which was approaching from the opposite direction for their flyby. The time it had taken to land a second unplanned aircraft had now messed up the timing for the event. I remember saying, "Boy this is stupid." I could tell we were going to have to land in a hurry before the flyby P-3 met us at the merge. None of us reacted to my observation. It hit me that I had been so fixated on the other two aircraft that I had forgotten to call for the final flap setting or complete the landing checklist. We hurriedly configured the aircraft and finished the checks.

So there we were, turning short final, with the landing P-3 just touching down and the flyby P-3 descending and accelerating (smoking more than usual) toward us at warp factor 9. Just as I thought everything was going to work out, the craziest thing happened. The events of the next few seconds could not have been timed or performed better by the Blue Angels.

The landing P-3 cleared the runway as two new players entered from stage left: two buses, which had been holding for the P-3 to land, had been cleared by the ground controller to cross the runway prior to our landing. The first bus hurried across the runway, followed closely by the second. The second bus driver saw us on very short final and did what any smart driver should do in this situation: he stopped right in the middle of the runway. Then the air show started.

I immediately initiated an in-close, foul-deck waveoff, as the tower controller started yelling for us to go around. The waveoff lights were flashing. The next sound was the TCAS (traffic alert and collision avoidance system) calling a resolution alert: "Descend, descend now, descend, descend now!" as I looked up to see the P-3 in perfect position for a right-to-right, knife-edge pass. Some JOs on the ground later told me that it was a perfectly timed airshow maneuver. We met, making hard left turns at coaltitude within several hundred feet of each other. My copilot, an ex-Hornet driver, capped off the moment by calling, "Fight's on."

Postflight debrief revealed that the two buses were carrying the base CO and a City of Jacksonville delegation on a facilities tour. I'm sure the ground controller felt some pressure to hustle them across the runway. The driver of the second bus stopped because only the lead bus was in communication with the ground controller. He had been happily following the lead bus until he saw us bearing down on him. The airshow P-3 was piloted by the squadron CO. He was doing a flyby for a group of underprivileged children that his squadron was hosting that day.

I'm sure both groups were impressed that the Navy was able to coordinate such an impressive flyby. But things could have gone terribly wrong if I had mistakenly turned right instead of left on our waveoff. The CNN news flash would have said, "City of Jacksonville delegation killed in midair collision of Navy C-9 and P-3 over the NAS Jacksonville runway…more information at the top of the hour."

This close call didn't have to happen. I had correctly identified and assessed the hazard (yes, this old guy knows the ORM lingo)…I just didn't let my experience help me make the right risk decision.

But we did look good!

Cdr. Boening flies C-9B and DC-9 aircraft with VR-58.

by LCdr. Steven Finco

So That's Why We Carry the SAR Checklist!

PH1 (NAC) Stephen Batiz

Talk about the unexpected. After a weekend in the heartland of America, I launched in my Hornet from a municipal airport in the Midwest late on a Sunday afternoon and headed back to the East Coast. Despite a few days away from maintenance, the only gripe was one of my two UHF radios was broken, not bad for a wood-burning Lot 10.

Chicago Center quickly cleared me to FL330, with direct routing to my destination. Eight minutes after brake release, I coupled the autopilot to home plate. Betty was giving me a smooth ride. Radalt reset, external fuel transferring, and cabin pressurization on the correct schedule, I even had 100 knots of tailwind! Another routine, extended navigation-training sortie. Suddenly, the OXY LOW caution illuminated. No problem, I had two liters, I was fat on gas, and only 1+00 until I'd be on deck. Time to sit back, change frequencies every 10 minutes and monitor Betty, while she monitored everything else.Thirty minutes into the flight, Cincinnati Center asked me if I was receiving a UHF emergency locator transmitter (ELT) beacon. I deselected squelch on my Guard receiver, and I could hear a faint ELT beacon through the background static. I dropped an INS waypoint at my present position to anchor an ADF bearing to the ELT source and passed this information to Cincinnati Center. A quick check of the chart revealed an Air Force base along the bearing to the beacon. I was sure the source of the beacon was an Air Force aircraft sitting on the ramp after a "hard landing" following a poorly executed flare-to-land.

As I continued east at more than 600 knots, the ELT beacon became strong enough to break through the squelch setting of my radio. I was assaulted with the incessant "Whoop, whoop, whoop" of the ELT. My first reaction was to deselect the automatic guard-frequency-monitoring function of the ARC-182 radio to regain the peaceful quiet of a single-seat cockpit. But since I had time on my hands, I decided to plot another ADF bearing to the source of this irritating sound. Just as I selected the ADF function on the radio, the emergency beacon stopped and was replaced by a voice calling, "Mayday, Mayday, Mayday"!

The person in distress was an Army sergeant who had been on land-navigation and survival training in the mountains of West Virginia. An unexpected, fast-moving snowstorm had moved into the area, and he was suffering from hypothermia and frostbite. He was lost, but had been issued a UHF air-band radio (like our PRC-90s) to use in an emergency.

I furiously searched my nav bag, trying to locate my SAR checklist. As I collected all the pertinent information on the survivor, his radio signal became weaker, and I soon lost radio contact. As I switched off of guard frequency back to Washington Center, the controller frantically called for me to contact the next ATC sector. I explained to him that I needed to turn around and fly a reciprocal course to reestablish communication with a soldier in distress. To my surprise, even though I was in class Alpha airspace, I was cleared to go anywhere I desired at my current altitude of FL 330. I also explained that I was single radio, and that I would be off his frequency and would monitor guard.

Slowing down to max-endurance airspeed, I flew west while making calls on guard, trying to find the frigid man in the tree-suit. I soon reestablished radio contact with him and set up an orbit at FL330, where the radio signal was the strongest.

While directing the survivor to switch to the SAR common frequency of 282.8, the local Flight Service Station (FSS) attendant in Elkins, West Va., contacted me on guard. He had been monitoring my transmissions and believed the survivor was a member of the local Army base. As the FSS attendant called the Army base, I calculated my bingo fuel to reach my original destination. I also started looking for a local divert field, in case I had to remain on-station throughout the rescue effort.

Elkins FSS was able to coordinate with the Army command post to have the land-navigation instructor (callsign "Muz") in the field come up SAR common frequency. By the sound of Muz's voice, he wasn't happy that a Navy aircraft was needed to help find one of his lost pups.

Because of UHF line-of-sight problems on the ground, I was acting as the comm relay between the survivor and the rescuers. I received updates from Elkins FSS on when an Army SAR helo would arrive, and kept Washington Center advised. I felt like a switchboard operator.

With five minutes of on-station fuel and only 20 minutes of daylight remaining, I was resigned to changing my destination to a local divert so I could remain airborne as long as possible. It seemed a small concession to make in order to provide a wayward soldier with a warm bed for the night. Fortunately, Muz soon passed that they had located the survivor.

I switched to Washington Center and got clearance at FL410 direct to my destination. Passing FL390 in the climb, I was putting away my charts when I noticed the OXY LOW caution again. With less than one liter of oxygen remaining, I wouldn't be able fly the most fuel-efficient profile to my destination.

My bingo-fuel calculations were predicated on 100 knots of tailwind and fuel-burn rates at FL410. I was still getting good oxygen flow, but since I was not sure how long it would last, I got clearance to FL230 and started a fuel-conserving descent. If the LOX bottle went completely empty, I planned to execute a rapid descent.

The winds were favorable at FL230, and 40 miles from the field, I started my idle descent, penetrating a thick undercast at 17,000 feet. Passing 9,000 feet, I was in the clear, but, since it was 10 minutes past sunset, it was rapidly getting dark. I received radar vectors to the visual straight-in, and at 10 miles, I contacted the tower only to be informed that they could not get the field lights to come on. Rest assured, they said—public works was working the problem.

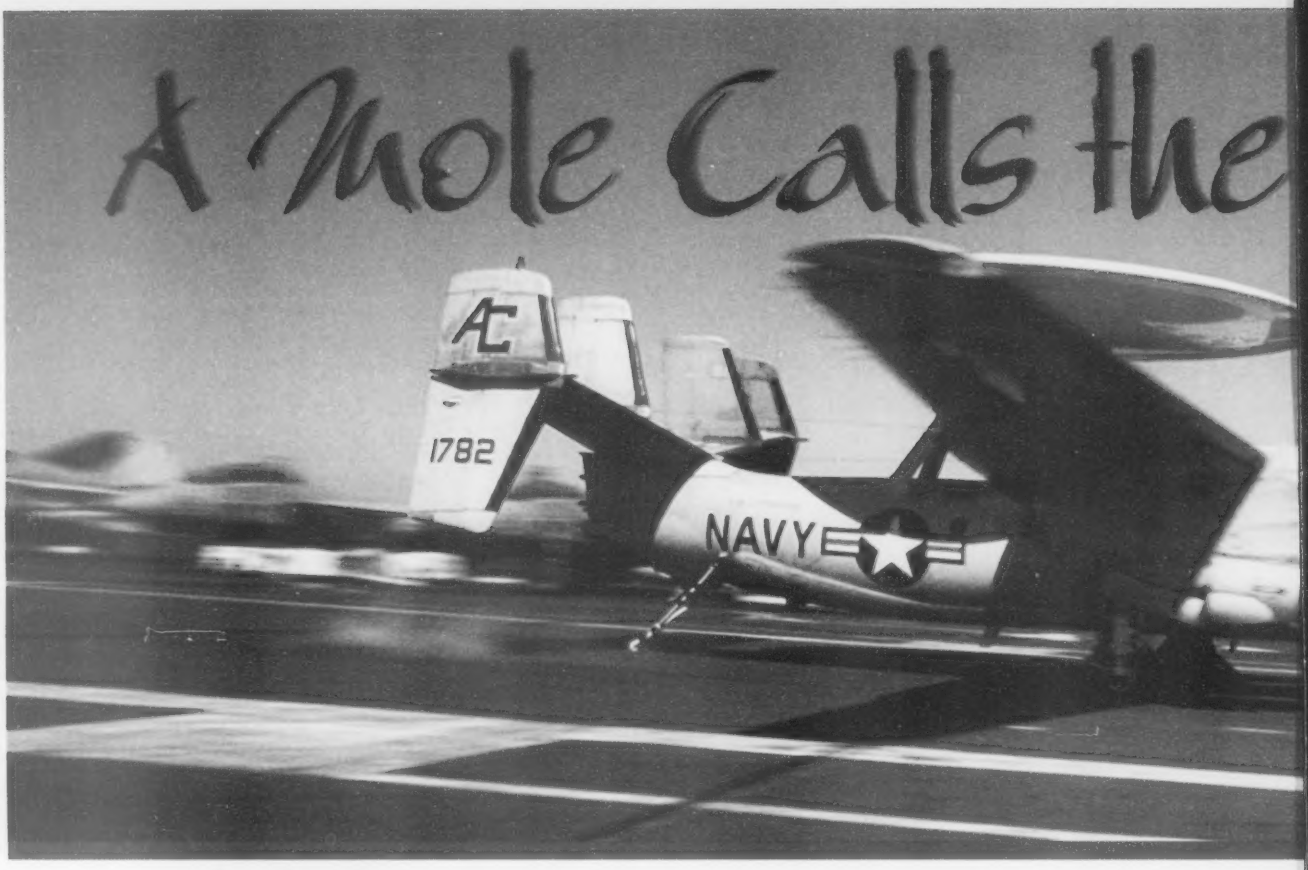
I was cleared to land at my own risk, and the Fresnel lens was still operating. My fuel at touchdown was 50 pounds below day SOP minimums and well below night minimums.

This seemingly routine flight had quickly turned into a high-task SAR mission. Coordinating the SAR effort with four separate units on three frequencies with only one operable radio was demanding. Rule number one for the on-scene commander of a SAR effort: Never put yourself in extremis. My bingo fuel figures were calculated using an optimum flight profile, but in all the excitement, I failed to consider the ramifications of the OXY LOW condition.

In the future, I won't be so spring-loaded to deselect guard when receiving an ELT beacon!

LCdr. Finco flies with VFA-86.

A Mole Calls the



by Lt. Norm Presecan

So there I was, a first tour NFO with two Persian Gulf deployments under my belt, a mission-commander qual, more than 900 E-2C hours, two different aircraft carriers, and a gritty layer of salt becoming visible on my shoulder. There wasn't much I hadn't seen or done (that could be done) in my two and a half years as a fleet mole.

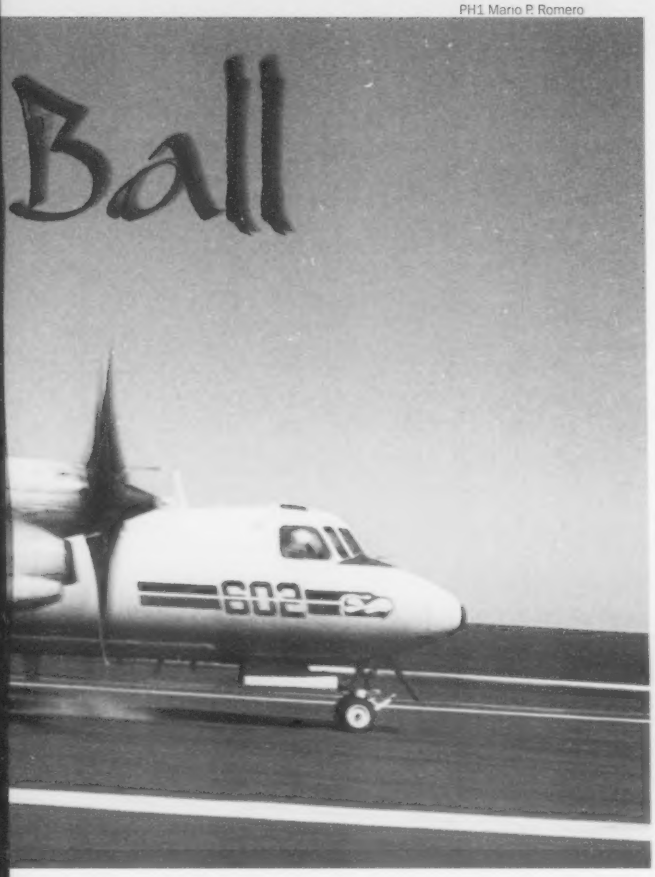
My pilot that night was a nugget. He still had that new pilot smell. Tonight would be his first non-CQ hop in the fleet. I wasn't worried, because he'd done extremely well during CQ at the FRS and with us. The CAPC sitting in the right seat was a seasoned veteran, a lieutenant commander with a bunch of hours and a genuine fear of death. He was the perfect choice to show the new guy the ropes.

I would be sitting in the RO seat. The CICO, who was flying his first hop from the ship since getting his mission-commander qual, was in the ACO seat. My squadron had just gotten underway from Guam, after a successful SFARP det and a few days off. Carrier quals had gone smoothly, and we were all looking forward to some good flying and some great WestPac ports during this two-month deployment.

The hop was standard; a double cycle with a night launch and recovery. The mission was AEW and some OPFOR control, nothing too strenuous for the first day out. During the brief, we quickly discussed some of the ORM issues pertaining to the flight, specifically, the new CICO. Satisfied that we had all the bases covered, I was sure this would be a boring flight.

Things started to get interesting immediately after launch. As we climbed to 1,000 feet for the Case III departure, the pilot started wondering aloud why no one was talking to him. After a few seconds of confusion, our intrepid CAPC reverted to the "original" ICS—shouting. He soon managed to get the pilot to select radio 6 (which had our tac freq entered) and began talking to him on the radio. He had his hands full talking to departure and Red Crown. There wasn't much we could do to help in the back, short of calling traffic and backing up the

PH1 Mario P. Romero



radios. Things settled down, and we proceeded to station to figure things out.

On station, the pilots swapped seats, and the CAPC began to troubleshoot the ICS box. In order to get at it, he had to remove a cover on the instrument panel. He proceeded to re-seat the connectors on the box and replaced it. In the process, however, one of the fasteners skittered away. Despite an extensive search, the CAPC couldn't find it. On the plus side, the impromptu maintenance seemed to do the trick, and full ICS function was restored to the cockpit. Since we were flying the last event of the day for this aircraft, there would be plenty of time to do a FOD search after we landed. The pilots returned to their original seats, so that our nugget could get his night trap.

Liberty 601 headed into the marshal stack. I listened in as the CAPC explained the finer details of fuel and time management in the marshal stack. We'd timed it perfectly, commencing on time.

CP (radio #1): "Marshal, Liberty 601, commencing."

CP (ICS): "OK, you're heading is 280."

Pilot (ICS): "I can't hear you..."

Of all the silly times for the ICS to quit again! We were spring-loaded in the tube this time, and tac was up in radio No. 2 before the CAPC had to ask for it. We proceeded inbound and attempted some limited troubleshooting but quickly decided to concentrate on getting the beast on deck. The CAPC continued to make all radio calls while talking to the pilot, but soon he became overloaded with comms. He shed the approach radio to the CICO. The CICO, realizing that he would soon be unable to use the foot switch because of the stowed ditching hatch (since he was sitting in the ACO seat), immediately gave that job to the RO—me!

Now, I've been talking on the radio for years, but this was different. In the back of the E-2, there is no direct flight-control input, and we have no needles. I had to coordinate with the CAPC so I didn't sound stupid. Fortunately, most of my lines were easy: "601" or "roger."

We decided that I should call the ball so the copilot could concentrate on talking our new pilot down (switching radios at three-quarters of a mile isn't a great idea). Ironically, I had been talking to the MO earlier that day about calling the ball as a mole. He'd never done it. Now I had my chance.

"601, three-quarters of a mile, call the ball."

"601, Hawkeye Ball, 4.0."

We caught a 3-wire, and our nugget even got the lights off before the end of the rollout.

Crew coordination had been a critical factor from start to finish. Front-to-back coordination in the E-2 can be tricky sometimes, since the aircrew members are separated by about 20 feet of radar and equipment boxes. Everyone in the crew had great SA throughout the flight, and this was vital to the smooth transition from routine to abnormal operations.

What about our decision-making? Was it smart to leave a brand new pilot in the left seat with a faulty ICS? We assumed that the ICS problem was fixed, and for most of the flight it worked, but it quit at exactly the worst time. Amazingly, we lost pilot ICS at the two most critical moments of flight. Good crew coordination and flexibility allowed us to handle this minor emergency effectively, without becoming so wrapped up in it that we forgot to aviate.

Lt. Presecan flies with VAW-115.

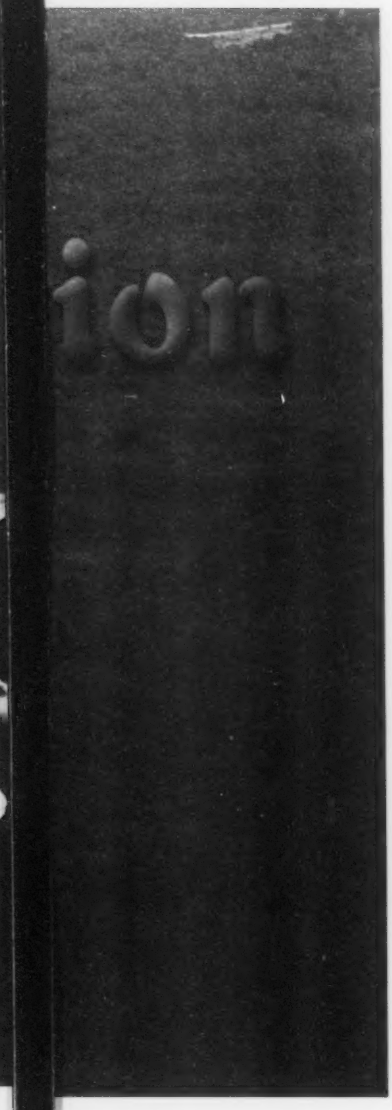
The Miracle of Condensa

(or) You Never Have a Squeegee When You Need One

by LtCol. John DeHart

"...If I don't have enough time to get dressed and strapped in again before landing, wave off this approach..."

When a front-seater in a Cobra mooned the Air Boss during a round of boat bounces in the middle of a particularly dull float, he instantly achieved legendary status in the community (as well as being put in hack for two weeks). I marveled that disrobing in such a small cockpit was possible. But many years later, I found myself in a remarkable set of circumstances that called for similar measures...



A training mission in the UC-12 offered a fine afternoon of flying over the Gulf Coast. We could make as many instrument approaches as could be desired by any two red-blooded American pilots. The trouble was that the air conditioner didn't work, and the Gulf Coast was suffering under a very hot, very humid summer. The solution was to fly as high as possible and let the cold air at high altitudes do the work of the broken air conditioner.

Frequently dragging the sleeves of our flight suits across our brows during the start and runup sequences, we broiled in the aircraft and stopped sweating only at Flight Level 290. The outside air, at minus 20 C, chilled the airplane and finally made the cabin reasonably comfortable. Humming along at high altitude was cool and relaxing, but we still needed to get to the business of practice approaches. So after an hour, we nosed over a flat pine forest that surrounded an airport in Florida.

Sitting in the right seat, my job was to talk on the radio, read checklists and back up the flying pilot in the left seat. We descended into the sultry depths of the lower atmosphere and got ready to shoot an approach. Eight miles out from the field, about three minutes before touchdown, we passed through 2,000 feet. At precisely that point, the cold airplane descended into just the right combination of hot, humid air to make the windshields sweat. In a flash, the windows completely watered over with condensation. I raised my hand and tried to wipe the glass. The large beads of water moved around some, but the window continued to sweat. I looked around the cockpit area for something that would absorb water. No joy. I tried to pull the little nomex flap at the end of my flight suit sleeve forward to the palm of my hand. Too small and not absorbent enough.

So there I was, CAVU outside, IFR inside. My garrison cover of poly-wool wouldn't work. Six miles, two and a half minutes out. I needed something large and very absorbent... like a T-shirt. Good ol' 100 percent cotton would do the trick. Aha! I was wearing one!

I wrestled the flight suit's zipper to half mast, shrugged back the top half of the flight suit, and took off my T-shirt. Stopping to put my headset back on, I said to the other pilot, "If I don't have enough time to get dressed and strapped in again before landing, wave off this approach, and we'll set up for another. No way do I want you to ball this up while I'm half dressed... the mishap board would draw the wrong conclusions."

Vigorous application of the T-shirt to the windows cleared them. Another struggle later, I was again seated, fully clothed and strapped in, confirming the landing checklist yet again, with a mile to spare. My new preflight regime for the UC-12 includes ensuring that a cotton towel or plenty of paper towels are within easy reach of the cockpit. No way do I want to be IFR inside, when it's CAVU outside, again.

LtCol. DeHart flies with units in the 4th Marine Aircraft Wing.

Why Not? Chuck Yeager Did It

by Lt. Robert Belk

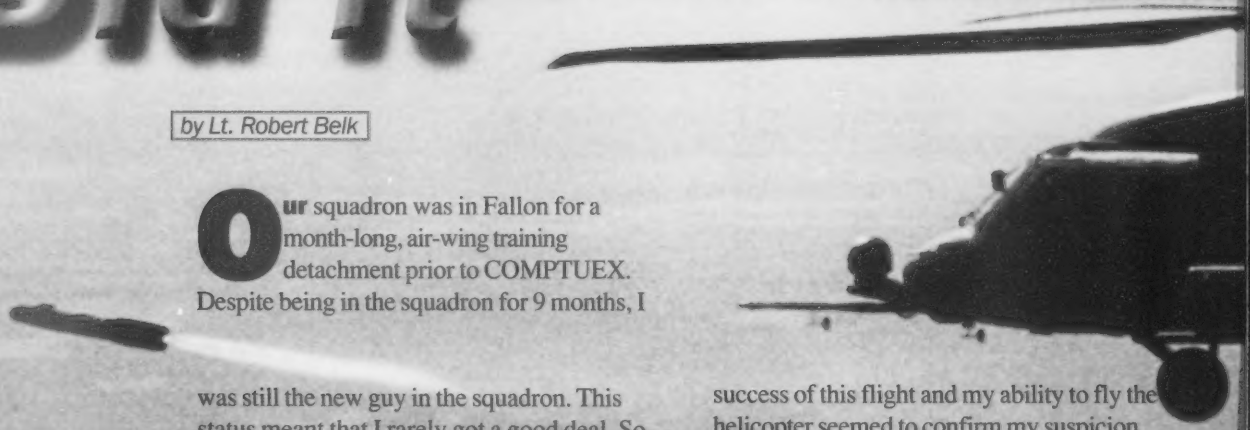
Our squadron was in Fallon for a month-long, air-wing training detachment prior to COMPTUEX. Despite being in the squadron for 9 months, I was still the new guy in the squadron. This status meant that I rarely got a good deal. So when I heard that I was going to be part of the crew that fired the first Hellfire missile shot in our squadron's history, I was ecstatic. It was a once-in-a-lifetime opportunity that would take place during the third week of training. I couldn't wait for it to roll around.

After the second week of training, we got our customary admin at Lake Tahoe for the weekend to relax, enjoy the surroundings, and get prepared for the more arduous events that would come during the final phases of training. One day, I was fooling around, sparring with one of my fellow JOs in Tahoe. He administered a hefty blow to my left side. I immediately screamed, "Damn, I think you broke my rib," but, after writhing in pain and cursing for a considerable amount of time, I managed to convince myself otherwise. I decided that my ribs were simply bruised.

Two days later, I was still very stiff, but I was scheduled to fly. Even if I did have a broken rib, I was convinced that it wasn't that big a deal. If Chuck Yeager could break the sound barrier with broken ribs, why couldn't I fly a helicopter at 100 knots? Besides, there was no way I was going to pass up an opportunity to shoot a Hellfire. So went my logic, if you can call it that.

The XO and I took off for two and a half hours of practice runs at a target northeast of NAS Fallon. Everything went smoothly, and we returned from the flight without incident. The success of this flight and my ability to fly the helicopter seemed to confirm my suspicion that I had simply suffered a bad bruise. I was confident that subsequent flights would be the same.

The next morning, we took off again to test the system with a live missile loaded on the rail. Again, I felt fit, and my side didn't bother me. We returned to NAS Fallon for a quick turnaround and launched again for the real shot in the afternoon.



About an hour into that flight, after 10 more practice runs at the target, I began to feel a dull pain in the left side of my chest. The pain quickly escalated. It felt like a vise was clamping down on me. It was hard to breathe, and I was having a hard time concentrating. I thought, "Not now—we've almost taken the shot." The pain, however, soon got to the point where I had to tell the rest of the crew.

We were recording our FLIR display and ICS communications to document the practice runs and the upcoming missile shot. I certainly didn't want my condition to be recorded for history, so I asked one of our aircrewmen to stop the tape. Then I confessed that I was having serious pains in my chest and suggested that it might be a good idea to set the helicopter down so I could stretch a bit. The XO took the controls and we orbited for a few minutes so I could loosen my harness and try to ease the tightness in my chest. After a few minutes of deep breathing and self-healing, I reported that I would be fine, and we continued the flight. About 15 minutes later, we took our missile shot and headed for home.

Once on deck, I feebly extracted myself from the cockpit and limped into the hangar, where I called the flight surgeon and asked him to pick me up. By the time he had gotten me to the clinic, I could barely sit, breathe or walk. My muscles were so tight that I couldn't even lie down. After some consultation, he decided to take me to a local hospital for some better X-rays. On the drive to the hospital, I was having such severe muscle spasms that it felt like convulsions.

When we finally got to the hospital, I was subjected to more X-rays and a CAT scan. The doctors determined (surprise, surprise!) that I had a broken rib and blood in my chest. As it turned out, the broken bone had cut a capillary in my chest, and a pocket of blood was pressing against my left lung. They inserted a chest tube into my left side and admitted me to the ICU, where I received regular doses of several pain-killers (the only benefit of this experience). By the next day, over a liter of blood had drained out of my chest.

After three days of recuperation in the ICU, I was released from the hospital, walking feebly and trying to salve my ego. Although I had been in serious pain during that stay in the hospital, it could have been a lot worse. Like any typical pilot, I had thought there was nothing that would keep me from flying a once-in-a-lifetime good deal. However, once-in-a-lifetime opportunities can become last-in-a-lifetime events. I had risked my own health and the safety of my crew, with my single-minded desire to fly that flight.

Lt. Belk flies with HS-7.

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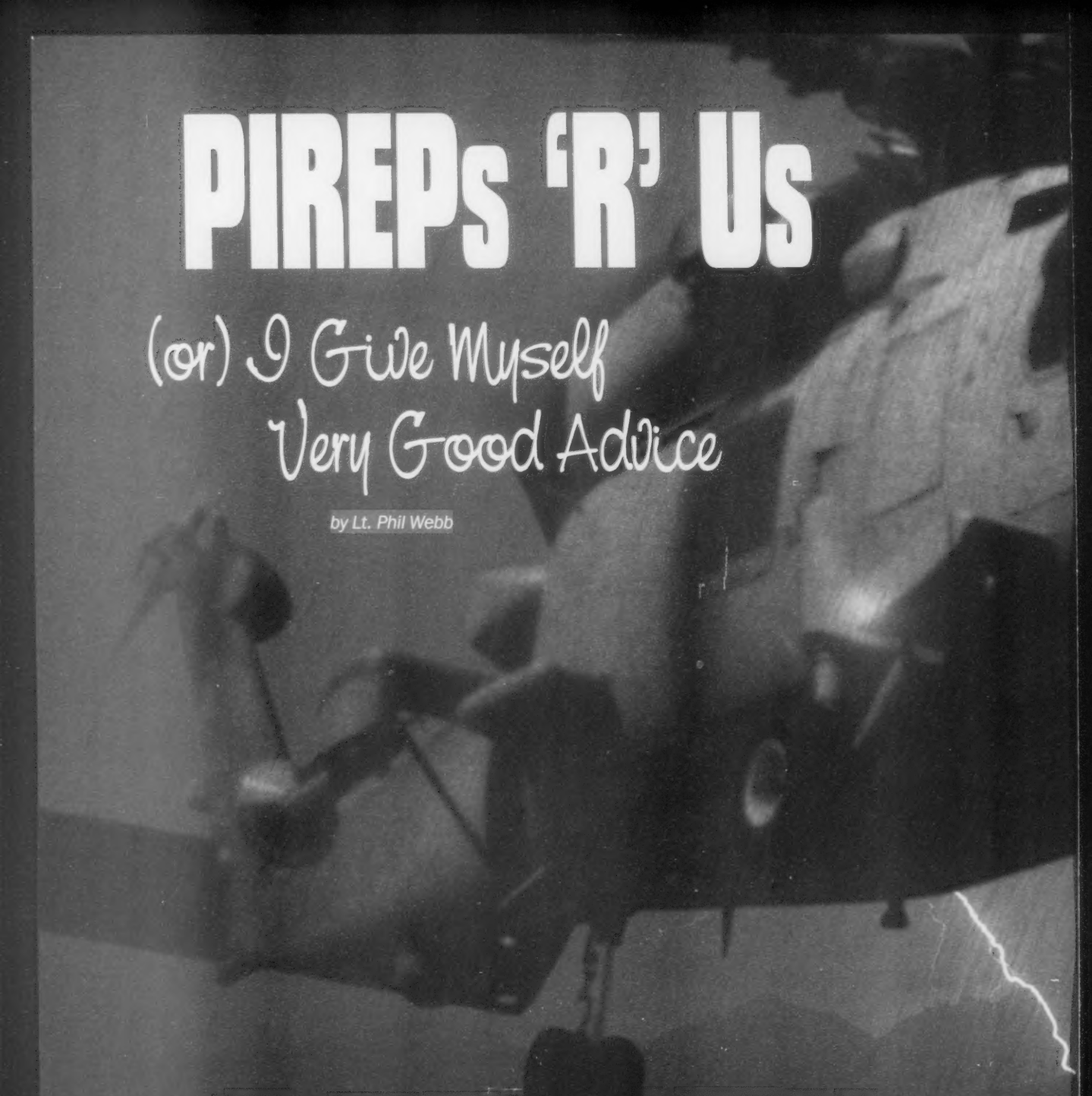
Lt. Belk flies with HS-7.

PIREPs 'R' Us

(or) I Give Myself Very Good Advice

by Lt. Phil Webb



It was funny. Actually, as I sit here safe on deck several months after the event, it was downright hilarious. At the time, however, the situation in which the crew of Hellfire 03 found themselves revealed a serious breakdown of aircrew coordination.

The weather at first didn't seem too bad—a typical December evening in Japan, with low overcast at about a thousand feet, scattered rain showers and T-storms all about, freezing level at 3,000 feet, and lightning everywhere. Ops normal for the Kanto Plain. Our mission was to hone our USW skills by firing up our onboard training system (the Deployable Proficiency Trainer, or DPT) and prosecuting a USW problem.

We headed south and went feet wet over Sagami Wan Bay. It quickly became apparent that this area would be unworkable due to a huge storm cell hovering right off the coastline. Not to be denied our valuable training, we repositioned approximately 10 miles to the east over Tokyo

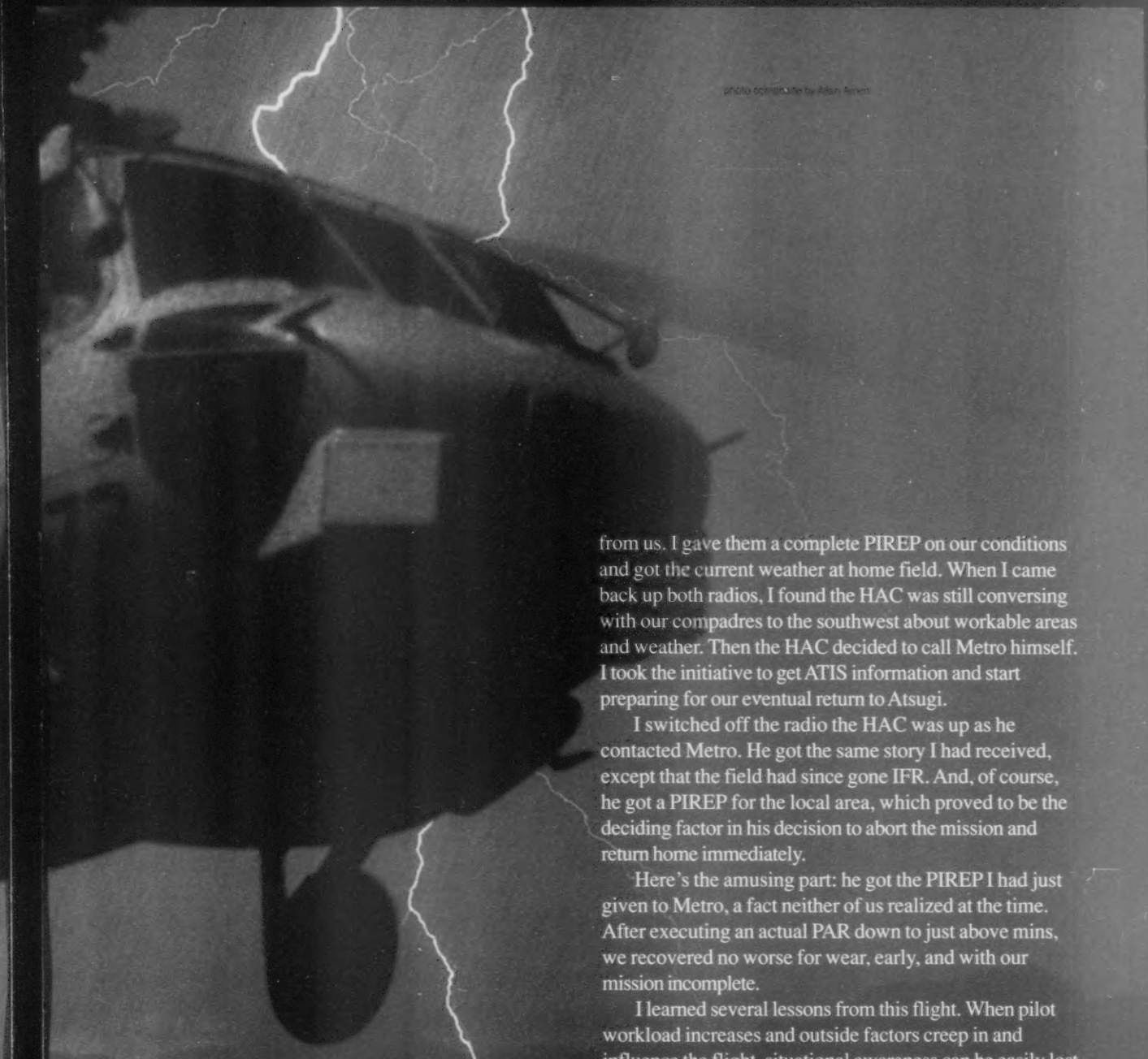


photo composite by Allan Ahern

Bay. The weather wasn't as bad, but we continued to skirt low clouds and rain showers. We knew the prudent thing to do was to keep an eye on the weather and update home field conditions frequently. The USW problem proceeded according to plan, but about half way into the problem, the conditions at home field deteriorated rapidly. The situation inside the cockpit started to deteriorate as well.

We decided to break off training and tune up Metro for the complete picture at home field. The HAC tasked me to call Metro while he coordinated with one of our other helos also working the local area. We were now monitoring and talking on different frequencies. Metro requested a PIREP from us. I gave them a complete PIREP on our conditions and got the current weather at home field. When I came back up both radios, I found the HAC was still conversing with our compadres to the southwest about workable areas and weather. Then the HAC decided to call Metro himself. I took the initiative to get ATIS information and start preparing for our eventual return to Atsugi.

I switched off the radio the HAC was up as he contacted Metro. He got the same story I had received, except that the field had since gone IFR. And, of course, he got a PIREP for the local area, which proved to be the deciding factor in his decision to abort the mission and return home immediately.

Here's the amusing part: he got the PIREP I had just given to Metro, a fact neither of us realized at the time. After executing an actual PAR down to just above mins, we recovered no worse for wear, early, and with our mission incomplete.

I learned several lessons from this flight. When pilot workload increases and outside factors creep in and influence the flight, situational awareness can be easily lost. It is an all-hands, all-crew effort to maintain situational awareness in the cockpit. I should have remained up both radios and said something when we received *my* PIREP from Metro. Using clear, concise and precise radio and ICS calls, and having a good communications plan inside the aircraft, goes a long way toward keeping everyone well-informed. We knew what the weather was, but it took someone outside the aircraft to repeat it to us for our communications loop to become complete. This instance gave us a good chuckle in the debrief, but it could have easily been avoided.

Lt. Webb flies with HSL-51, and is a member of Detachment Four.

by Lt. Bill Avery

Still Deadly Aft

Keflavik, Iceland, was once on the front line between the Soviet military and the free world. Today, day-to-day operations center more on being the one and only gas station in the North Atlantic, handy for aircraft that can't make a straight shot from North America to Europe. Recently, a foreign aircrew stopped here with tragic results.

The aircrew arrived from Europe in their twin-engine, medium cargo plane. There isn't much to do in these parts, so after a night in billeting, they were back on the ramp first thing in the morning for their next leg to Canada. The day was unusually calm for the winter: the temperature a balmy 39 degrees F, with only 6 knots of wind. It was just after 8 a.m., but the sun wasn't due up for another hour.

The rest of the aircrew completed their before-start checks while the pilots filed and got the weather brief. Then they all manned up, and the pilots started the engines. A lineman wasn't present, since the aircrew hadn't requested one. They were just about to call for taxi clearance when one of the aircrew told the loadmaster that the battery door might still be open. Usually, a member of the aircrew makes sure this door is closed during preflight. Once you get in the aircraft, you can't see if it's closed.

The loadmaster put on an ICS headset to go outside the aircraft to check the battery door. The main cabin door is just forward of the No. 1 engine on the port side. The battery door is on the aft end of the sponson that houses the port main landing gear. Egressing

Small yellow signs mark the horrific results of a body meeting a spinning prop.

er All These Years

the aircraft isn't a problem, provided the crewman walks a 45-degree angle between the wing and the nose of the aircraft. We aren't sure what happened, since there were no eyewitnesses, but the result was both tragic and gruesome.

The loadmaster walked into the No. 1 propeller. The spinning blades killed him instantly, throwing body parts more than 100 feet. The chaplain had to administer thelast rites to his flight boots. Firefighters used fire hoses to clean the aircraft and the ramp. All members of the emergency-response teams spent time with the base psychologist to help deal with the trauma. I was devastated by meeting the wife and two children of the loadmaster when they came to Iceland to recover the body.

A safety commission from the loadmaster's home country is investigating the mishap. During their visit, I learned that they hadn't had a similar mishap in their country in more than 50 years.

As I write this article, the commission has not yet published its conclusions. I do know that, for some reason, the loadmaster didn't follow standard operating procedures for being near a spinning propeller. Please let this tragedy serve as a reminder the next time you or one of your shipmates is near a propeller, whether on a flight deck or on an airfield ramp. Your SA must be flawless while you're completing your last check, doing maintenance, loading weapons, escorting passengers, or just checking a battery door.

Lt. Avery is the aviation safety officer at NAS Keflavik, Iceland.

You Want Me To Do What?

Ltjg. Chris Claybrook

One day in the VTs, I was scheduled for an out-and-in with an instructor who was known for letting students try maneuvers outside of the syllabus. We had flown an uneventful hop to College Station, and when we returned later that night, the weather started to deteriorate. We did our best to hit some open areas in front of us, but we should have picked up an IFR clearance. My instructor decided to stop by Corpus Christi International for a touch-and-go, preceded by a short break at the numbers.

As we approached, he requested the short break, and I noticed that the weather wasn't getting any better. I'd never done a short break, much less at night and in probable IFR

Artwork by John W. Williams
Photo composite by Yvonne Dawson

I assumed we would find a hole to descend through, but we couldn't even see any lights.

conditions. We found a clear area above the numbers, and, as we passed them, I pulled the power to idle and rolled into a 45-degree angle of bank, just as instructed. It went well, and I felt proud as we headed back into the night.

We proceeded to Navy Corpus on top of an overcast layer. The weather at the field was 1,100-foot overcast and 3 miles visibility. I assumed we would find a hole to descend through, but we couldn't even see any lights.

The instructor told me to contact Navy Corpus tower and request another short break. I said, "Sir, I can't really see much up here, should we pick up an approach?"

He replied, "No, once we drop below a thousand feet, we should be able to see well enough to get in."

We were cleared for the short break and descended to 800 feet, but we still couldn't see the ground. Our DME was clicking down, so I knew we had to be getting close. We were both looking for the runway but saw nothing but clouds. Finally, the approach lights came into view directly below us.

"Go!" the instructor said.

"With a short break?" I asked.

"Yes," he replied, more loudly.

Guessing he knew best, I once again pulled power and rolled the aircraft to a 45-degree angle of bank. Both of us lost our visual references as we went back into the clouds. I quickly became disoriented and started stuttering over ICS; I seem to remember him doing the same. We passed through 600 feet still in the turn, and worse, still in the goo. I asked him if he wanted the controls and he responded, slightly panicked, "Can you see anything up there?" I told him I couldn't, as I watched the altimeter pass 500 feet.

Finally, at 400 feet, still in the turn, the runway came back into sight off our left wing. I was still a bit disoriented because the visibility was so poor, but we rolled out onto final and landed. On deck, the instructor said, "Let's keep that between us."

If you don't feel comfortable with what is going on, speak up. I had been a mindless drone, failing to voice my concern or show a bit of assertiveness. At the time, it didn't seem like a big deal. I now understand it was the recipe for disaster.

Ltjg. Claybrook flies with HC-8.

PH2 (NAC) Jeff Viano

By Ltjg. Frank Goertner, USNR

Hitting the Boat

It was a perfect day for a Mediterranean VOD mission: sky clear, sea state nothing, and an over head time early enough to get to the ship and back by mid-afternoon. It was my first mission as a fresh PQM in my squadron. I was teamed up with an O-4 HAC; our task was to "hit" an AGF with some random supplies. That verb proved prophetic.

After an uneventful transit to the ship, I surprised myself with a sweet landing to the single aft spot of the AGF. Because of the size of our MH-53E on the deck, the LSE positioned us on touchdown with our nosewheel about eight feet forward of the touchdown circle. Our tail was just over the deck edge, which allowed enough room behind the aircraft to maneuver a forklift on and off the ramp. It also put the LSE and ship's hangar eight feet closer to me than I had been expecting. "Not a problem," I thought. I would just be extra-careful to avoid any forward drift on takeoff. Besides, the brakes would be on.

Well, maybe not. While the crew offloaded cargo, we had two uncommanded releases of the brakes. Now, with questionable brakes and an LSE and hangar uncomfortably close, I had to avoid any forward drift. I was concerned but still confident that the takeoff would be no big deal.

Once cleared, I initiated takeoff, cautiously adding a bit more back-stick than usual. After a nose-high lift, the aircrew told the HAC and me that we had struck and broken our tailskid. Our forward position on the spot had placed the tailskid directly over the deck-edge combing. I had added too much back-stick on takeoff, forcing the skid to hit the combing with enough sideward force to shear one of the supporting struts for the skid and bend several other parts. We set it down, inspected the damage, and flew back home later that evening.

Although internal corrosion in the sheared strut had contributed to its failure, the immediate cause of the accident was my excessive back-stick on takeoff. A rookie mistake, but one that could have been avoided. I had been trying to practice good situational awareness by taking into account our forward deck position and our uncertain brakes, but what I failed to include in my little S.A. calculation was my nugget-ness. My impressive total of five shipboard takeoffs and slightly more than 60 hours in the MH-53E was less than adequate experience for trying to handle an unusual takeoff on my own. I was accompanied by an experienced HAC and two experienced crewmen. Mentioning over ICS before takeoff that I intended to compensate for our situation could have cued the HAC to guard against the excessive back-stick and warned the crew to keep a particularly conservative watch on the tail.

Ltjg. Goertner flies with HC-4.

Letters

About a year ago, I attended the Aviation Safety Officer School in Monterey. I had requested to go there during my PCS move to VR-59, a C-9 squadron in Fort Worth, Texas. The school was thorough, and I felt well-prepared to handle just about anything. However, I had no idea at the time what I was in for.

During the last week of class, one of the instructors told us to look around the room. If the odds held, one of us would be doing a Class A MIR in the next 90 days. At that moment I turned to the guy next to me and joked, "Well, I'll be in C-9s with a bunch of airline pilots who have a gazillion hours, where there hasn't been a Class A mishap in 27 years. All I know is, one of you guys is screwed."

I thought that was funny until about six weeks after I checked in. We had a mishap, originally a Class A, but later downgraded to a B. From the beginning of the MIR process, the principles I had just learned were critical. Much of the evidence and interviews had to be collected immediately because the mishap had occurred just before Christmas. There was very little time to think about how to go about the process. In the end, it was very much like the MIR we did in school. I was amazed at how well the techniques for witness and aircrew interviews worked. I was also surprised at how hard it can be to protect the concept of privilege and keep things under control.

The lesson for all the ASOs out there is to be ready…it can happen to you. Go over everything from your pre-mishap plan and mishap-report message to your hazrep formats to OPNAVINST 3750.6Q. People will jump to help you, but you will be the subject-matter expert and have to run the show.

Lt. Mac Shuford, USNR, VR-59 ASO

I was attending a conference at NAS Fort Worth. One morning I woke up late, hurriedly dressed and ran out to my car. By my calculations, I had just enough time to drive to the conference center. Unfortunately, a cold front had moved in and the car windshield was covered with frost. Should I just get in and drive or clean the window first? Fortunately, I had a Naval Safety Center ORM card in my wallet. I pulled the card out and followed the procedures. I identified my options, weighed the benefits and risks and looked for control measures to reduce the risk. I then used the card to scrape the ice off the windshield.

ORM is a simple, versatile process, and it works even when you aren't at work.

LCdr. Humphrey Minx, MSC, Aeromedical Safety Officer, 4th Marine Aircraft Wing

News You Can Use

What: Aircrew Coordination Training and Crew Resource Management (ACT-CRM) School
Where: Naval Aviation Schools Command, NAS Pensacola
Web site: www.act.navy.mil

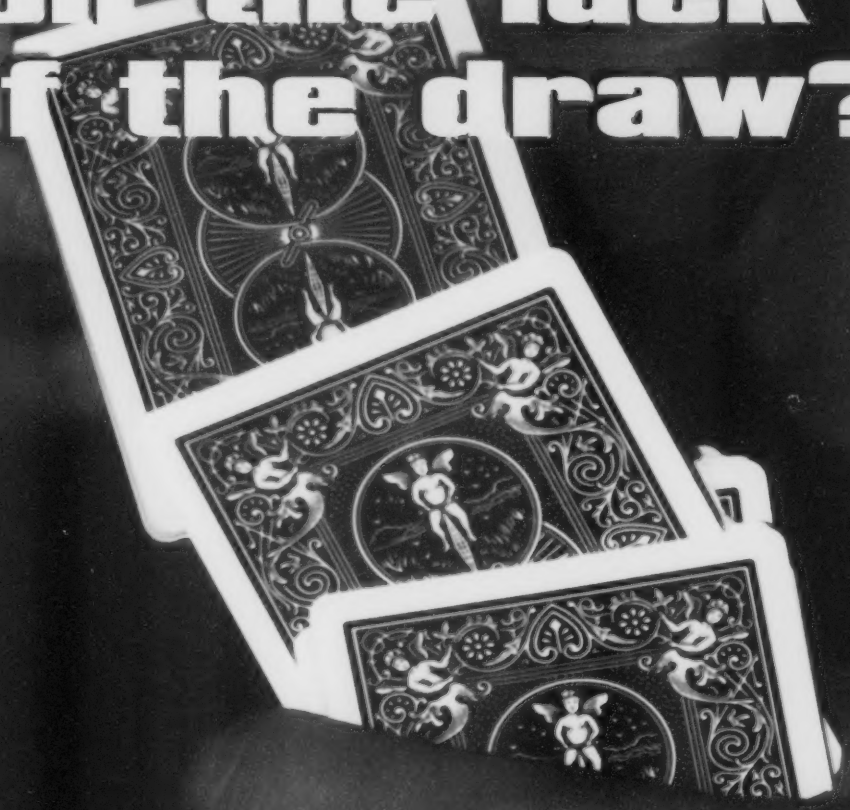
Classes at this school help aircrew improve mission effectiveness by teaching how to prevent crew errors, maximize crew coordination and use risk management. The school trains and certifies top-level ACT-CRM instructors, per the guidance in OPNAVINST 1542.7B. The school is also the Navy's central repository for ACT and CRM data; much of this information is available on our web site. You'll find:

- Most of the ACT-CRM standardized training curricula,
- Information about conferences, such as the ACT-CRM IPT and ESC Conference, Feb. 27-28, 2001, at the NAS Pensacola Aviation Museum, and class schedules.

After the school's current upgrade to its web site is complete, you'll find digitized video clips and audio clips for use in ACT-CRM training, platform-specific case studies, and a newsletter page that includes course updates, industry events, and examples of model manager programs.

For more information, start by visiting the web site, or call the school at DSN 922-2088.

Why depend on the luck of the draw?



ORM Will Reduce Risk

Use it!

Photo: LCpl. Kevin R. Reed

www.safetycenter.navy.mil
Poster idea contributed by John W. Williams